



# Corporate Report

NO: R123

COUNCIL DATE: July 14, 2008

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## REGULAR COUNCIL

TO: Mayor & Council DATE: July 10, 2008  
FROM: General Manager, Engineering FILE: 5280-80 (WNV)  
XC: 4807-913  
SUBJECT: 2008 West Nile Virus Response Plan

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## RECOMMENDATION

The Engineering Department recommends that Council endorse the Interim City of Surrey West Nile Virus Response Plan – 2008.

## INTENT

The purpose of this report is to apprise Council of, and seek endorsement of, the Interim City of Surrey West Nile Virus (WNV) Response Plan – 2008. The Interim WNV Response Plan will be replaced by a more detailed plan following 2008 monitoring information.

## BACKGROUND

For the past four years the City has conducted a program to reduce WNV risk through mosquito control. The goal of this program is to ensure a sufficient level of preparedness in advance of the eventual arrival of WNV in B.C. The driving force behind this program is risk to human health. The program is paid by funding from the Province, administered through the Union of BC Municipalities (UBCM).

There are essentially three basic methods for controlling mosquito populations:

- Larviciding;
- Adulticiding; and
- Source Control.

Larval mosquito control, or larviciding, targets immature mosquitoes in their aquatic habitat before they become flying, biting adults. In general, larval control is the most effective method of controlling mosquito populations, has the least effect on non-target

species, and has the smallest “footprint” in terms of environmental impacts. Adult mosquito control targets adult mosquitoes using insecticides that are applied using “foggers” that produce clouds of tiny droplets that kill mosquitoes upon contact. Adulticiding is relatively ineffective, non-selective (kills other insects including mosquitoes) and can create other problems. Source control consists of modifying potential mosquito breeding habitat so that it no longer functions as breeding habitat. Examples include agitation of stagnant water bodies (e.g., golf course water features) and elimination of areas of pooled water on private properties (e.g., birdbaths, ornamental ponds, old tires, etc.).

### **WNV Strategy**

In 2003, the Provincial Government announced a comprehensive Provincial strategy to address WNV. As part of the Province’s coordinated WNV strategy, the Minister of Health Services obtained a Pesticide Use Permit under the *Pesticide Control Act* to control mosquitoes should they pose a public health risk due to their ability to spread WNV. The permit ensures health officials can respond quickly to protect B.C. residents. It provides a legal mechanism to allow pesticide application if health officials determine the virus poses a public health threat.

### **WNV Response Plan**

To date, WNV has been found in all of North America except British Columbia and Alaska.. Last year it entered Washington State and its occurrence increased in Oregon and California. With the expected arrival of WNV in British Columbia this year, the Fraser Health Authority (FHA) has asked municipalities within its region to prepare a WNV response plan that addresses public communication, surveillance, and control relating to mosquitoes and WNV. The FHA has requested that the plan include the following items:

- Staff and Council education regarding WNV;
- Public education regarding ways to reduce mosquito breeding and recommended ways to protect against mosquito bites;
- Identification and mapping of mosquito producing areas/breeding sites;
- Source reduction of mosquito breeding and nesting sites;
- Mosquito larvae speciation to determine the abundance and distribution of species that are potential WNV vectors (carriers);
- Preparedness for control of mosquito larvae, including preparedness for use of larvicidal agents;
- Monitoring of adult mosquito populations – speciation and abundance throughout each season;
- Appointment or confirmation of members for the WNV Adult Mosquito Control Local Advisory Committee;
- A public communication strategy for the WNV Response Plan;
- A public communication strategy to be implemented in association with Fraser Health if mosquito control measures (larval and/or adult mosquito control) are determined to be necessary to protect human health;

- A process for the rapid identification of areas that would be considered sensitive if adult mosquito control activities are deemed to be necessary; and
- A process for monitoring and evaluating the WNV Response Plan.

### **Regional Policy for a Standardized Preparedness and Management Approach for West Nile Virus for Health Purposes: Mosquito Surveillance, Education and Larval Control**

To aid municipalities in preparing their WNV Response Plans, and to ensure a coordinated regional approach is adopted for WNV preparation, the Regional Engineers' Advisory Committee (REAC) of Metro Vancouver set up a Mosquito Technical Work Group in January 2004. This Working Group developed a policy for both the preparedness and management of mosquitoes for health purposes. Metro Vancouver Board of Directors passed this policy on March 26, 2004. The policy is based on the Local governments assuming responsibility for the management of mosquitoes on their lands. Mosquito management on private lands is the property owner's responsibility and will be managed by the Regional Health Authorities under the provision of the *Health Act*.

The *Interim City of Surrey West Nile Virus Response Plan – 2008* is an update of the 2007 WNV Response Plan. These plans are developed annually by the City of Surrey at the request of the Fraser Health Authority. The Plan follows the “Regional Policy for a Standardized Preparedness and Management Approach for West Nile Virus for Health Purposes: Mosquito Surveillance, Education and Larval Control for Surface Waters on Public Lands” and the “Regional Policy for a Standardized Preparedness and Management Approach for West Nile Virus for Health Purposes: Mosquito Surveillance, Education and Larval Control in Catch basins on Public Lands” that were developed by the Mosquito Technical Work Group chaired by Metro Vancouver. Staff is proposing that Council adopt the Interim City of Surrey West Nile Virus Response Plan – 2008 (attached as Appendix I).

### **Preventative Measures by Contractor**

The City of Surrey – Mosquito Surveillance and Control on Public Lands for WNV Risk Reduction – 2008 - Contract M.S. 4807-913 was awarded to Culex Environmental Limited and involves monitoring and preventative control measures to deal with WNV vector mosquitoes on public properties. Preventative measures include cleaning and/or treating catch basins, filling in small areas where water can collect and stand, mapping and monitoring key breeding areas, and treating mosquitoes at the larval stage of life. The plan also includes some public awareness and communication initiatives in conjunction with Provincial and Regional authorities.

### **Adult Mosquito Control**

Adult control should be considered only when there is a significant human health risk and only implemented when ordered by a Regional Health Authority. The Regional Health Authorities will lead planning for adult mosquito control. Local governments may assist in the planning process but have deferred most adulticiding activities to their respective Health Authorities due to the nature of the activity. Should the Regional Health

Authority feel that adult mosquito control is necessary, a Local Advisory Committee would be formed to provide input to the Health Authorities.

### **Local Advisory Committee**

The Fraser Health WNV Adult Mosquito Control Local Advisory Committee has been established to provide consultation for the Medical Health Officer regarding the advisability and feasibility of adult mosquito control in a specific situation or situations in order to mitigate a human health hazard. The members of the Committee are:

- Two to three regional health staff including the Manager, Health Protection (Communicable Disease) or designate and an MHO;
- Two or more local/regional government representatives including an Engineering Department representative, a Mosquito Control Contractor representative, and an elected municipal and/or regional district official;
- A Ministry of Environment Pesticide Officer; and
- A BC Centre for Disease Control representative.

### **FUNDING**

The Province has mandated the need for municipalities to develop and implement WNV Risk Reduction Programs, and to date, the Provincial Government has provided the necessary funding. The City of Surrey's funding application to the Province, which is administered through the UBCM, for the 2008 WNV risk reduction programs has been accepted and funding has been received. The new funding totals \$199,026.80. Provincial WNV funding carried-over from 2007 is \$206,815.00 and with addition of the new 2008 funding, the combined Provincial WNV funding allotment for the City of Surrey for 2008 is \$405,841.80.

### **CONCLUSION**

Staff is recommending that Council adopt the attached *Interim City of Surrey West Nile Virus Response Plan – 2008* (Appendix I).

Vincent Lalonde, P.Eng.  
General Manager, Engineering

CAB/SBG/rdd/brb

Appendix I - Draft City of Surrey West Nile Virus Response Plan – 2008

### Interim City of Surrey West Nile Virus Response Plan - 2008

The 2008 West Nile Virus (WNV) Response Plan is an update of the 2007 WNV Response Plan developed by the City of Surrey at the request of the Fraser Health Authority. The Plan follows the “Regional Policy for a Standardized Preparedness and Management Approach for West Nile Virus for Health Purposes: Mosquito Surveillance, Education and Larval Control for Surface Waters on Public Lands” and the “Regional Policy for a Standardized Preparedness and Management Approach for West Nile Virus for Health Purposes: Mosquito Surveillance, Education and Larval Control in Catch basins on Public Lands” that were developed by the Mosquito Technical Work Group chaired by Metro Vancouver. In addition, the Plan follows current program development regarding Provincial and regional communications for WNV response.

Where municipalities were identified as having the lead responsibility, the method by which Surrey plans to carry such tasks is described. For tasks for which other jurisdictions are identified as the lead responsibility, the support role that Surrey will fulfill for the task is identified, if applicable.

#### Sustainable Response Planning

1. *Each jurisdiction should prepare a sustainable WNV response plan for their surface waters and catch basins based on this policy.*

This document serves as Surrey’s WNV response plan for surface waters and catch basins that fall under the City’s jurisdiction.

2. *Each jurisdiction should regularly monitor and evaluate its response plan.*

Surrey will undertake to evaluate its response plan on a yearly basis. This plan is the result of an evolving response plan that has been updated each year since 2004, the year it was first created.

3. *The Provincial government should be encouraged to provide ongoing financial assistance to local governments in implementing sustainable WNV response plans.*

Surrey will support Metro Vancouver and Regional Health Authorities in their ongoing efforts to secure long term funding for the implementation of WNV response plans from the Provincial Government.

In 2008, the Provincial Government has committed funding to Local Governments to ensure a proactive approach to mosquito control through the “2008 West Nile Virus Risk Reduction Prevention Initiative” administered by UBCM.

4. *Each jurisdiction should estimate its annual WNV management costs in a general framework to contribute to an annual regional roll-up.*

Surrey manages the WNV portion of its mosquito control operations as a separate project from nuisance mosquito control, so costs are easy to track and document. Surrey is willing to provide these costs to Metro Vancouver as part of an annual regional roll-up.

### **Mapping and Inventory**

5. *All WNV-vector mosquito habitat (surface water and catch basins) in the jurisdiction should be digitally mapped and incorporated into the jurisdiction's WNV database.*

Similar to the 2006 and 2007 program, the 2008 program will ensure that all mapping is coordinated with the regional database maintained by Metro Vancouver. Surrey will supply data on mosquito surveillance, monitoring and treatment activities to the regional mapping initiative. As a partner in the process, Surrey will be able to compare its activities with those of others in the region to better coordinate programs.

Larval monitoring for all surface water mosquito development sites will be performed on a weekly basis and will consist of site exploration, dip sampling, species identification, and mapping of results. A representative sample of catch basins within Surrey (to account for variations in aspect, vegetation cover, etc.) will also be monitored on a weekly basis.

6. *WNV-vector mosquito related data should be made available to participating jurisdictions to assist in providing a larger sub-regional or regional context.*

Surrey provides Metro Vancouver with all of the surveillance mapping completed annually to contribute to the regional information resource. In 2008, Surrey will provide the regional database with regular updates of the program including catch basin cleaning locations, monitoring results and treatment areas (for both surface waters and catch basins).

7. *Each jurisdiction should classify their identified WNV-vector mosquito habitats according to the risk they pose for breeding WNV-vector mosquitoes.*

Surface water mosquito development sites will be classified according to "Mosquito Municipal Control Guidelines" (Ellis, 2001) as high, medium and low risk sites.

In 2005-2006, the regional working group initiated a project entitled "Pre-emptive West Nile Virus Mosquito Control in Catch basins: Identification of Triggers and Priority Areas for Larval Treatment" ("Triggers Study") to look at identifying potential high priority areas more likely to provide WNV-vector breeding habitat in Catch basins. The City will take the results of this study, with the assistance of the contractor, and rate different geographical areas of Surrey according to risk.

8. *Each jurisdiction should compile locations of areas of environmental sensitivity, and monitoring and surveillance results by individual jurisdictions.*

Areas that are sensitive to management measures (e.g., fish bearing watercourses, schools, hospitals, etc.) will be assembled by City staff and this information provided to the contractor for incorporation into the GIS database. Compilation of both data sets (i.e., mosquito breeding habitats and sensitive areas) in the database will allow City staff and the contractor to prioritize sites for treatment and evaluate proposed management measures based on proximity of sensitive areas.

Monitoring and surveillance results of the 2008 WNV-vector management program undertaken by the City, will be compiled and provided to Metro Vancouver for incorporation into the regional database.

### **Surveillance**

9. *In sampled surface waters and catch basins each jurisdiction should record attributes and the data be maintained in its WNV database.*

Surrey will undertake to record data for its WNV database in such a way that it is compatible with the regional database (managed by Metro Vancouver).

### **Integrated Management for Larval Control**

10. *Each jurisdiction should make adequate preparations for larval control of vector mosquitoes, including a catch basin treatment program for managing WNV-vector mosquitoes for health purposes.*

Surrey will be fully prepared to undertake larval control of vector mosquitoes in both surface waters and catch basins through a mosquito control contractor. Catch Basin cleaning is coordinated with the larval control program to ensure that treatment is as effective as possible.

11. *If it is not feasible to clean and treat all identified areas of concern, each jurisdiction should determine its treatment regime for its mosquito vector habitat as resources allow.*

As discussed above (B3) Surrey will utilize the results from the completed “Triggers Study” to rate the risk levels for catch basins throughout the City and prioritize areas for treatment. This rating scheme will then be used to identify areas for pre-emptive larval treatment of catch basins and also to prioritize areas for widespread larval treatment in the event that WNV arrives in BC.

Surface water mosquito development sites will be prioritized and treated according to their assessed level of risk (as per Ellis, 2001).

12. *Each jurisdiction should monitor and evaluate the results of treatments, if any, as resources allow.*

The City's mosquito contractor, as part of the 2008 program, will conduct post-treatment monitoring.

13. *The REAC WNV Mosquito Work Group should continue to investigate viable alternatives to the application of pesticide in surface waters and catch basins for control of mosquitoes.*

Surrey has had a staff member sitting on the Working Group since its inception, and will continue to actively participate in the group. Surrey supports research and investigation into methods of mosquito control other than pesticide application.

14. *Each jurisdiction should, over time, consider modification of potential vector mosquito habitat by physical or mechanical means to reduce their viability as mosquito breeding habitat (with caution to avoid disruption of sensitive habitats).*

As part of the 2008 mosquito control program, the City's contractor will be asked to outline prescriptive measures for areas conducive to physical modification, which may include, but are not necessarily limited to, the following:

- Continued disturbance of water surfaces
  - Ideal for man-made structures and other water features; and
  - Not practical or desirable for natural watercourses or ditches.
- Introduction of predators
  - Install swallow or bat boxes in key locations.
- Habitat alteration
  - Remove or add vegetation;
  - Adjust water level;
  - Adjust water flow; and
  - Remove water (if possible).
- Application of physical barriers
  - Remove debris in catch basins.

Operations staff will also commit to reducing standing water in upland ditch systems when identified and if feasible. Parks Operations will endeavor to have all catch basins that were not cleaned in 2007 cleaned this year to reduce possible breeding areas.

15. *The Regional Health Authorities should ensure that there are appropriate protocols in place to facilitate access for inspection, surveillance, monitoring and control of mosquitoes for health purposes, including private lands.*

Surrey has several bylaws already in place that could be utilized to facilitate access for inspection, monitoring and control of mosquitoes on private lands. These include the "Surrey Sanitation Bylaw, 1969, No. 3052", "Surrey Community Improvement and



Unsightly Property Bylaw, 1997, No. 13150”, and “Surrey Community Improvement and Noxious or Offensive Trade Bylaw, 2003, No. 15144”, and “Erosion and Sediment Control Bylaw, 2006, No. 16138”.

In 2005, The Ministry of Health completed a project looking at crown lands, school properties and private lands. The City will look at initiatives involving integration between the various parties where applicable.

## **Communications**

16. *The Regional Health Authorities/Province should prepare public messages on:*
- *Private land owners responsibilities and general WNV information;*
  - *Surveillance results; and*
  - *Treatment including personal protection, source reduction and adaptive management.*

Surrey will act in a supporting role in this task (e.g. aid in the distribution of brochures prepared by the FHA). In 2005, local government staff was added to the provincial communications working group. Surrey staff will continue to participate in this working group to ensure the needs of local governments are recognized in the provincial planning initiatives.

17. *Metro Vancouver should utilize its communication and education channels to assist the Regional Health Authorities to deliver the public messages across the Lower Mainland.*

Metro Vancouver has developed a WNV communications initiative to coordinate communications needs of the province and local governments in the region. Under this initiative, media coordination in the event of a WNV outbreak will occur as well as information dissemination. Surrey is a member of Metro Vancouver communications group developing standard information and responses for the region as well as establishing defined lines of communication for each local government.

18. *Each jurisdiction may supplement the general regional and provincial communication messages with messaging specific to their needs including, where applicable, private landowners.*

Surrey’s contractor will develop education programming for youth, which can be taken out to schools if necessary. The City is also planning to host several open houses that would be conducted to coincide with WNV activity. In addition, the City’s mosquito control contractor will provide educational presentations to staff and Council. The City’s “Nature Matters” program plays a key education role at public events in this regard. Information is also handed out through the program to farmers, industry, and residents. This public education initiative is coordinated with Fraser Health Authority staff.

In 2006 the Fraser Health Authority (FHA) updated their 2004 WNV brochure and specifically customized a number of versions for different audiences. The City will liaise

with the Fraser Health Authority to distribute to the community these and any other education materials that are developed.

Information on WNV and key telephone numbers will be posted on the City of Surrey website. In addition, an automated telephone tree will be setup to better manage directing the public to information on WNV and the appropriate authorities for corvid reporting, etc.

19. *Messages concerning WNV mosquito management in surface waters and catch basins should be disseminated to the public in a timely and consistent manner.*

The City will ensure that its mosquito contractor makes the public aware of larvicide applications in surface waters and catch basins by posting notices of the intent to treat in local newspapers and providing a 24-hour telephone information hotline.

20. *The REAC WNV Mosquito Work Group should continue to act as a focus for information sharing and regional policy review on catch basin management for WNV management purposes.*

As demonstrated by its initiative in undertaking the “Triggers Study”, the Work Group is committed to a regional, coordinated approach to catch basin management for WNV. Surrey will continue to work with the Working Group to facilitate information sharing and regional policy review for WNV catch basin treatment.

21. *Each jurisdiction should share a summary of its experiences in surface water and catch basin management for WNV prevention with other jurisdictions in the REAC WNV Mosquito Work Group to ensure that we are managing from a regional perspective.*

Surrey will continue to share this information with the Work Group members.

### **Data Management**

22. *All jurisdictions should ensure that WNV data is collected or processed so that it can be made available in a common format compatible for regional use.*

Surrey’s mosquito control contractor will collect and format data into a GIS database that is standardized to Metro Vancouver database format. The City will continue to participate in the Regional WNV data model being hosted by Metro Vancouver.

### **Training and Technology**

23. *Each jurisdiction should ensure that appropriate personnel are trained in the basics of responding to public inquires related to the WNV response plan of their jurisdiction.*

Surrey plans to provide all staff with information regarding WNV and personal protection measures. In addition, key clerical staff will be provided with answer keys to general information on WNV in order to facilitate public inquiries. All departments are given

critical information on WNV to deliver to the public. This is conducted through the City's call centers, building permits, recreation centers, Fire Department staff and all City Hall counters.

## **Research**

Each jurisdiction should support the development of a predictive model that will facilitate the efficient management of mosquitoes for WNV.

Surrey supports the development of a predictive model and will provide assistance to Metro Vancouver and Health Authorities to complete this task.